Finding The Outlier Points from Matplotlib

September 29, 2025

[1]:
```
# Adding libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

[2]:
```
# random integers between 1 to 20
arr = np.random.randint(1, 20, size=30)
```

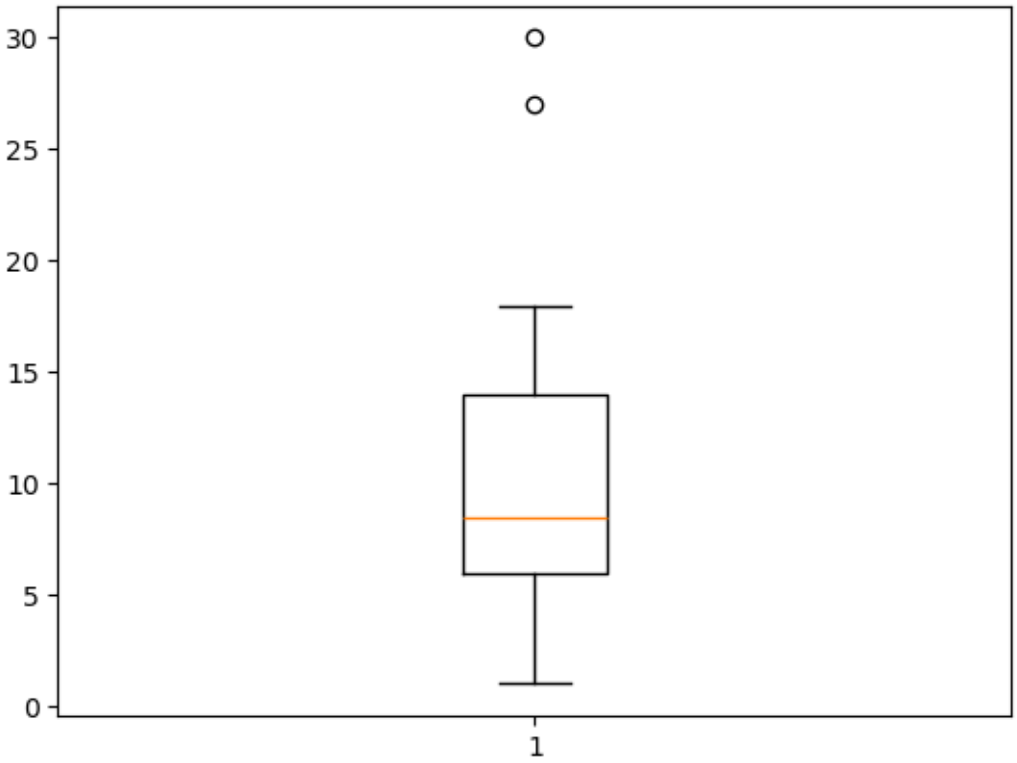
[3]:
```
# two outliers taken
arr1 = np.append(arr, [27,30])
```

[4]:
```
print('Thus the array becomes{}'.format(arr1))
```

```
Thus the array becomes[15  6  5  2  7  9 16 11  9  1 14  7  8  2  6  9 14  9  7
5 14  6 18  7
  9  6 16  5 12  6 27 30]
```

[5]:
```
plt.boxplot(arr1)
```

[5]:
```
{'whiskers': [<matplotlib.lines.Line2D at 0x1a15b2ce990>,
  <matplotlib.lines.Line2D at 0x1a15b2cead0>],
 'caps': [<matplotlib.lines.Line2D at 0x1a15b2cec10>,
  <matplotlib.lines.Line2D at 0x1a15b2ced50>],
 'boxes': [<matplotlib.lines.Line2D at 0x1a15b1d6850>],
 'medians': [<matplotlib.lines.Line2D at 0x1a15b2cee90>],
 'fliers': [<matplotlib.lines.Line2D at 0x1a15b2cefd0>],
 'means': []}
```



[6]:
```
fig = plt.figure(figsize =(10, 7))
```

```
<Figure size 1000x700 with 0 Axes>
```

[7]:
```
plt.show()
```

[8]:
```
# finding the 1st quartile
q1 = np.quantile(arr1, 0.25)
```

[9]:
```
# finding the 3rd quartile
q3 = np.quantile(arr1, 0.75)
```

[11]:
```
# finding the iqr region
iqr = q3-q1
```

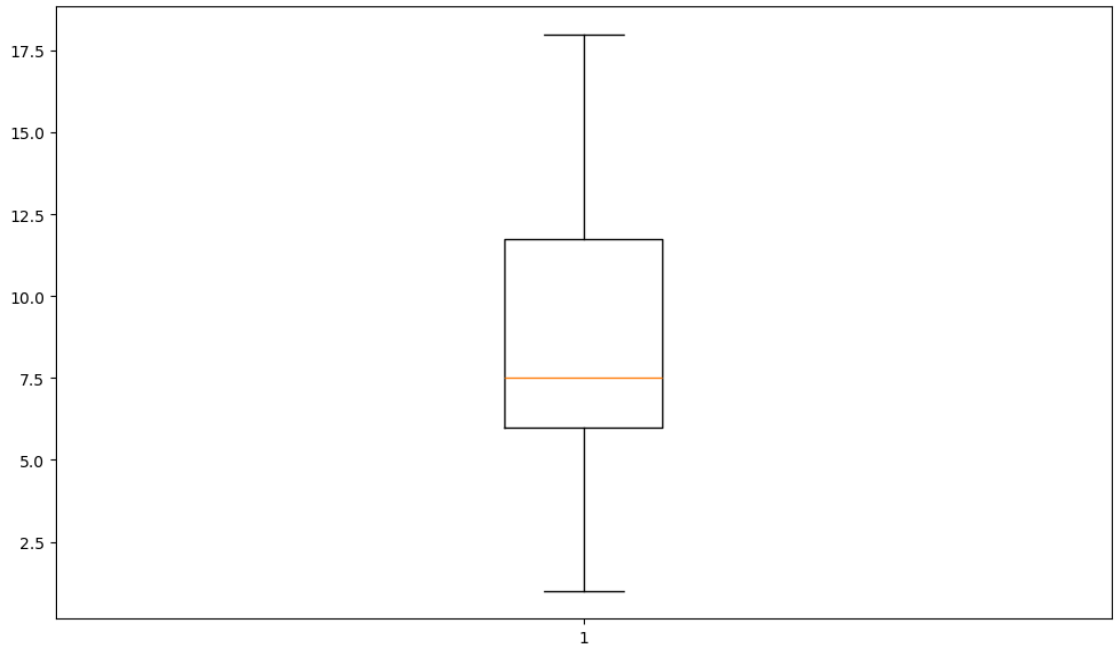
[13]:
```
# finding the upper and lower whiskers
upper_bound = q3 + (1.5*iqr)
lower_bound = q1 - (1.5*iqr)
print(iqr, upper_bound, lower_bound)
```

```
8.0 26.0 -6.0
```

[14]:
```
outliers = arr1[(arr1 <= lower_bound) | (arr1 >= upper_bound)]
print('The following are the outliers in the boxplot:{}'.format(outliers))
```

```
The following are the outliers in the boxplot:[27 30]
```

[15]:
```
# boxplot of data within the whisker
arr2 = arr1[(arr1 >= lower_bound) & (arr1 <= upper_bound)]
plt.figure(figsize=(12, 7))
plt.boxplot(arr2)
plt.show()
```



[16]:
```
!jupyter nbconvert --to pdf "Finding The Outlier Points from Matplotlib.ipynb"␣
↪--output "C:/Users/ASUS/Downloads/finding_outlier_points.pdf"
```

```
[NbConvertApp] Converting notebook Finding The Outlier Points from
Matplotlib.ipynb to pdf
[NbConvertApp] Support files will be in
C:/Users/ASUS/Downloads/finding_outlier_points_files\
[NbConvertApp] Writing 26998 bytes to notebook.tex
[NbConvertApp] Building PDF
[NbConvertApp] Running xelatex 3 times: ['xelatex', 'notebook.tex', '-quiet']
[NbConvertApp] Running bibtex 1 time: ['bibtex', 'notebook']
[NbConvertApp] WARNING | b had problems, most likely because there were no
citations
[NbConvertApp] PDF successfully created
[NbConvertApp] Writing 32567 bytes to
C:\Users\ASUS\Downloads\finding_outlier_points.pdf
```

[ ]: